

REMARKS

Claims 1, 9, 17 and 25 have been amended. Claims 33-39 are newly presented herein. No new matter is presented by these amendments.

Claims 1-4, 6-11, 13-15, and 17-39 are pending in the application.

Rejections Under 35 U.S.C. § 103

Claims 1, 3-4, 6-11, 13-15, and 17-32 were rejected under 35 USC § 103(a) as being unpatentable over *Gvili et al.* (“*Gvili*”) (Depth Keying, SPIE Vol. 5006(2003)) in view of *Podoleanu et al.* (“*Podoleanu*”) (US 6,769,769), and further in view of *Kawaguchi et al.* (“*Kawaguchi*”) (US 6,473,516). As discussed further below, the cited references do not teach each and every feature of the claims as amended herein.

Regarding claim 1, the Office notes that *Gvili* does not teach the adjusting of image capture device parameters according to bit values of the depth mask, wherein the image capture device parameters are selected from one of focus, brightness, exposure or gain. The Office cites the *Podoleanu* reference as teaching the adjustment of the image capture device parameter of focus. However, Applicant has amended claim 1 to recite that the image capture device parameter is selected from one of brightness, exposure or gain. *Podoleanu* does not teach the adjustment of an image capture device parameter selected from one of brightness, exposure, or gain, according to bit values of a depth mask. Therefore, the rejection of claim 1 is moot in view of the amendments to claim 1.

However, to the extent that the *Podoleanu* reference may be deemed to be applicable to newly presented claim 33, the Applicant responds as follows. *Podoleanu* teaches a multiple channel optical mapping apparatus which can deliver simultaneously

multiple images of different depth resolutions or sequentially, images with different depth resolutions, or a combination of these images, or a single image with adjustable depth resolution. (Abstract). Specifically, *Podoleanu* teaches a dynamic focus mechanism wherein en-face (or transversal) image pairs are generated by OCT and confocal channels. The confocal images have much larger depth resolution than the OCT images, and so are useful for providing guidance as to the part of the area investigated when evaluating the OCT images. *Podoleanu's* dynamic focus mechanism synchronizes the focusing of the OCT and confocal channels during a scanning operation through a range of depths, so that images generated by the OCT and confocal channels are depth resolved. In the alternative, when the dynamic focus is not implemented, the confocal channel is set in the middle of the focusing adjusting range, in which case the confocal images look the same while the OCT images are depth resolved. (Col. 32:5-65).

Though *Podoleanu* teaches a mechanism for synchronizing the focus adjustment of two different imaging channels, *Podoleanu* does not teach the adjustment of focus according to bit values of a depth mask as claimed. Applicant's claimed invention is drawn to the identification of foreground objects, the storage of such identification information in bit values of a depth mask, and the application of the depth mask to enable specific focus upon the foreground objects. In contrast, *Podoleanu* teaches the synchronized adjustment of focus of two optical channels throughout a given range, or the arbitrary positioning of one of those channels in the middle of such a range, with no particular identification of or bearing upon foreground or background objects, nor its adjustment according to bit values of a depth mask as claimed. *Podoleanu's* focus adjustment in fact pertains to a rate of focus adjustment based on the rate of focus

adjustment of another confocal optical channel, or else the arbitrary setting of focus at a middle point within a range of depths. Applicant's claimed focus adjustment, on the other hand, is performed "so that objects within the foreground region are in focus."

In sum, *Podoleanu* fails to teach the focus adjustment as claimed by Applicant in newly presented claim 33. New claims 36 and 38 are directed to similar features as claim 33, and are likewise believed to be patentable over *Podoleanu* for the same reasons as discussed above.

With continued reference to claim 1, the Office notes that *Gvili* and *Podoleanu* do not teach the adjusting of the image capture device parameters being done independently in the foreground from the background. Applicant has amended claim 1 to clarify that the image capture device parameter is adjusted "so that the brightness, exposure, or gain of the captured image frames is adjustable independently for both of the objects within the foreground region and the objects within the background region."

Kawaguchi teaches a technique for hiding information in an image by determining noise-like regions of an image and embedding data into the noise-like regions. (Abstract). While *Kawaguchi* discloses black-and-white images at Figure 1 which include "foreground" and "background" areas, these so-called foreground and background areas are unrelated to depth, and are simply given different labels for purposes of illustrating the general principles of *Kawaguchi*'s technique for hiding information in an image. Indeed, *Kawaguchi*'s teachings have nothing to do with foreground and background regions as claimed by Applicant. For according to *Kawaguchi*, an image is segmented into informative and noise-like regions using a threshold value of complexity. Then, the noise-like regions are replaced with blocks

carrying confidential information. (Col. 5: 26-63). The presence or absence of noise-like regions does not relate to their association with foreground or background portions of a scene which relates to depth. Thus, *Kawaguchi* may teach the replacement of noise-like regions of an image, but not the adjustment of an image capture device parameter so that captured image frames are adjusted independently for both objects in a foreground region and objects in a background region as claimed.

In sum, the prior art references of record fail to disclose all of the features of Applicant's claim 1, as herein amended. The remaining independent claims—9, 17, and 25—have been rejected on similar grounds as claim 1. Therefore, it is submitted that these claims are patentable over the cited prior art for at least the same reasons as discussed above regarding claim 1.

Dependent claims 2-4, 6-8, 10-11, 13-15, 18-24, and 26-40 depend from independent claims 1, 9, 17, and 25, and therefore include all of the features of their underlying corresponding independent claims. It is therefore submitted that these dependent claims are patentable over the cited prior art for at least the same reasons as discussed above regarding the independent claims.

New Claims

New claims 34, 35, 37, and 39 are directed to embodiments in which the adjusted captured image frames facilitates tracking of objects within the foreground region by reducing brightness of the background region. Support for these claims may be found, by way of example, in the as-filed specification at paragraph [0033]. These features are not

taught by the prior art, and the Office is requested to provide independent examination of these new claims.

New claim 40 is directed to an embodiment in which the foreground and background regions define two layers of the scene. Additional layers are included, with the method operation of adjusting pixel values being applied for objects within any of the layers of the scene. Thus, the concepts of the claimed invention for distinguishing between various regions of the scene are extended to multiple layers. Support for this claim may be found in the as-filed specification, by way of example, at paragraph [0041]. As claim 40 depends from claim 9, it is submitted that new claim 40 is allowable over the cited art of record by virtue of its dependence from claim 9.

Conclusion

In light of the clarifying amendments to the claims, and the foregoing remarks highlighting the differences between the claimed invention and the teachings of the cited prior art, the Applicant respectfully requests the Office to withdraw the Section 103 rejection. The dependent claims are also submitted to be patentable, for at least the same reasons as the independent claims are believed to be patentable.

In view of the foregoing, Applicants respectfully submit that all of the pending claims are in condition for allowance. A notice of allowance is respectfully requested.

In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at **(408) 774-6903**. If any fees are due in connection with the filing of this paper, then the Commissioner is authorized to charge such fees to Deposit Account No. 50-0805 (Order No. SONYP031). A copy of the transmittal is enclosed for this purpose.

Respectfully submitted,
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